CONTENTS

Volume 23, Issue Nos 1–15

International Journal of ENERGY RESEARCH

VOLUME 23, ISSUE No. 1 January 1999

Theoretical Thermal Performance Analysis of Two Solar Assisted Heat-pump Systems: H. Hulin, G. Xinshi and S. Yuehong 1

A Feasibility Study of a Solar Desiccant Air Conditioning System—Part I: Psychrometrics and Analysis of the Conditioned Zone: B. S. Davanagere, S. A. Sherif and D. Y. Goswami 7

Feasibility of Biomass Domestic Water Heating: A Case Study: S. A. Sherif and R. A. Harker 23

The Effect of a Black Insulation Sheet on the Evaporation Rate from a Shallow Salt Pond: H. Huang, M. Shi and X. Ge 31

Estimation of Non-equilibrium Parameters of Post-dryout Boiling Processes of Water: D. A. Kouremenos, E. D. Rogdakis and G. E. Houzouris 41

Pressure Drop and Collection Efficiency of Cyclone and Impact Separators in a CFB: S. De and P. K. Nag 51

Determination of Energy Loss Characteristics of Dampers: G. Gan and S. B. Riffat 61

Photocatalytic Reduction of some Alkali Carbonates in the Presence of Methylene Blue: S. Jain, G. Dangi, J. Vardia and S. C. Ameta 71

Optimal Dynamic Load Shedding Policy for Generation Load Imbalances Including Characteristics of Loads: M. El Arini 79

VOLUME 23, ISSUE No. 2 February 1999

Macroscopic Cylindrical Governing Equations: Transport Process in Unsaturated Porous Media with a Line Heat Source: G. Reddy and Z. Hu 91

A Feasibility Study of a Solar Desiccant Air-Conditioning System—Part II: Transient Simulation and Economics: B. S. Davanagere, S. A. Sherif and D. Y. Goswami 103

Applications of Thermal Energy Storage in Saudi Arabia: S. M. Hasnain, S. H. Alawaji, A. Al-Ibrahim and M. S. Smiai 117

Chemical Description of Spring Waters from the Tutupaca and Rio Calientes (Peru) Geothermal Zones: R. M. Barrágan R., V. M. Arellano G., P. Birkle, E. Portugal M. and G. Díaz H. 125

Economic Emission Dispatch: A Case Study of Myanmar: Y. Lin and S. C. Srivastava 141

Transport Demand for Energy: A Case Study for Kuwait: M. N. Eltony 151

A Simplified Fuel-NO_x Model Based on Regression Analysis: M. Xu, Y. Fan, J. Yuan, C. Sheng and H. Yao 157

Simulation-Based Assessment of Electric Load Management Programs: A. Gomes, A. Gomes Martins and R. Figueiredo 169

VOLUME 23, ISSUE No. 3 10 March 1999

Multimode Heat Transfer in Cyclic Flow Reversal Combustion in a Porous Medium: S. Jugjai and A. Somjetlertcharoen 183

Research on Kinetics of Limestone Desulphurization Reactions under a Reducing Atmosphere: Z. Zhong, J. Lan, B. Jin, D. Li and M. Zhang 207

Effects of Spray Characteristics on Combustion Performance of a Liquid Fuel Spray in a Gas Turbine Combustor: A. Datta and S. K. Som 217

Investigation of Manganese–Molybdenum–Diethyldithiocarbamate Complex as a Potential System for Solar Energy Conversion: E. Suresh, J. Pragasam, F. P. Xavier and K. S. Nagaraja 229

Overhang Shading Factor Values for Windows of General Azimuthal Angle Evaluated under Extraterrestrial and Terrestrial Conditions: Rahman, A. N. M. Mizanur and V. V. Satyamurty 235

Application of Battery Energy Storage System to Load Frequency Control of an Isolated Power System: S. K. Aditya and D. Das 247

Nuclear Fusion: Luxurious Mirage of a Long-Term Future Energy Option?: E. Zolti 259

VOLUME 23, ISSUE No. 4 25 March 1999

Study on Phase Change Temperature Distributions of Composite PCMS in Thermal Energy Storage Systems: J. Wang, G. Chen and F. Zheng 277

Theoretical Study on a Novel Phase Change Process: J. Wang, G. Chen and H. Jiang 287

The Fate of CO_2 Hydrate Released in the Ocean: H. Teng, A. Yamasaki and Y. Shindo 295

A Fuzzy Programming Approach to Energy Resource Allocation: R. Chedid, T. Mezher and C. Jarrouche 303

Experimental Results of a Sensible Heat Storage System for Residential and Light Commercial Application: A. H. W. Lee and J. W. Jones 319

A Universal Expression for Optimum Specific Work of Reciprocating Heat Engines Having Endoreversible Carnot Efficiencies: S. Bhattacharyya and D. A. Blank 327

A Thermal Analysis of a Radiant Floor Heating System Using SERI-RES: W. G. Chun, M. S. Jeon, Y. S. Lee, H. S. Jeon and T. K. Lee 335

On a Simple Analytical Model for Solar Chimneys: M. M. Padki and S. A. Sherif 345

Catalytic Control of Automotive NO_x: A Review: S. Bhattacharyya and R. K. Das 351

VOLUME 23, ISSUE No. 5 April 1999

Variable Air Volume Ventilation Control Strategies Analysed in Six Climate Zones: Y.-P. Ke and S. A. Mumma 371

An Experimental and Theoretical Study of the Nonlinear Heat Conduction in Dry Porous Media: S. Ali Pourhashemi, O. J. Hao and R. C. Chawla 389

Performance Evaluation of a Single Solar Air Heater with *N*-Subcollectors Connected in Different Combinations: H. P. Garg and R. S. Adhikari 403

Second-Law Analysis: Approaches and Implications: M. A. Rosen 415

Analysis of Mechanical Vapour Compression Desalination Process: H. Ettouney, H. El-Dessouky and Y. Al-Roumi 431

Mineral Transformation During Combustion of Coal Blends: J.-R. Qiu, F. Li and C.-G. Zheng 453

VOLUME 23, ISSUE No. 6 May 1999

Performance Enhancement in Coal Fired Thermal Power Plants. Part I: Boilers: M. Siddhartha Bhatt and S. Jothibasu 465

Performance Enhancement in Coal Fired Thermal Power Plants. Part II: Steam Turbines: M. Siddhartha Bhatt and N. Rajkumar 489

A Solar-Powered Ice-Maker with the Solid Adsorption Pair of Activated Carbon and Methanol: Z. F. Li and K. Sumathy 517

Triple Basin Active Solar Still: S. Kumar and G. N. Tiwari 529

A Catalytic Burner Using Propane and Toluene Alternately for the Drying of Textile Coatings: Y. S. Seo, S. K. Kang and H. D. Shin 543

VOLUME 23, ISSUE No. 7 10 June 1999

Recent Research on an Indirect Evaporative Cooler. Part VI. Evolution of Design Pattern for Indirect Evaporative Cooler: S. P. Singh, T. R. Tulsidasani, R. L. Sawhney and M. S. Sodha 557

A Model to Estimate Energy Demand and CO_2 Emissions for the Indian Cement Industry: A. Das and T. C. Kandpal 563

Heat and Mass Transfer Model of a Ground Heat Exchanger: Theoretical Development: M. Piechowski 571

Flyash Disposal Problems at Thermal Power Stations—An Experimental Study: E. S. Reddy, E. C. Nirmala Peter, K. Rama Sastri and B. Kura 589

Comparison of Heat Storage Systems Employing Sensible and Latent Heat: G. Van den Branden, M. Hesius and W. D'haeseleer 605

An Approach to Configure Optimal Cogeneration System Between Existing Steam Headers of an Industry: S. Roy 625

An Analysis on the Prediction of Temperature Distribution in an Annular Radiative Recuperator: W.-B. Kim 637

VOLUME 23, ISSUE No. 8 25 June 1999

Artificial Neural Network for Forecasting Residential Electrical Energy: A. Al-Shehri 649

Relative Performance of Correlations to Estimate Hourly Ambient Air Temperature and Development of a General Correlation: V. V. Satyamurty and K. S. Babu 663

Theoretical and Experimental Study of Efficiency Factor, Heat Transfer and Thermal Heat Loss Coefficients in Solar Air Collectors with Selective and Nonselective Absorbers: A. Hachemi 675

Modelling NO_x Emissions During Staged Combustion: M. Xu, Y. Fan, J. Yuan, C. Sheng and H. Yao . 683

The Catalytically Supported Combustor for Lean Mixtures: Y. S. Seo, S. K. Kang and H. D. Shin 695

Numerical Simulation of the Combustion Processes in a W-Shaped Boiler Furnace Under Different Operating Conditions: X. H. Liang, W. C. Fan, J. R. Fan and K. F. Cen 707

Synchronous Machine Parameters Estimation Using a New Genetic-Based Algorithm: K. M. El-Naggar and H. K. M. Youssef 719

Discharge Air System: Modelling and Optimal Control: G. R. Zheng and M. Zaheer-Uddin 727

VOLUME 23, ISSUE No. 9 July 1999

Simplified Evaluation of Building Energy Requirement for Air Conditioning: L. Schibuola 741

Optimization of Electrical Distribution Networks Fed by Conventional and Renewable Energy Sources: R. Chedid, S. Salameh, S. Karaki, M. Yehia and R. Al-Ali 751

Finite-Time Thermodynamic Performance of a Dual Cycle: J. Lin, L. Chen, C. Wu and F. Sun 765

Maximum Profit Performance of a Three-Heat-Reservoir Heat Pump: L. Chen, C. Wu, F. Sun and S. Cao 773

Performance Enhancement in Coal-Fired Thermal Power Plants. Part III: Auxiliary Power: M. S. Bhatt and R. P. Mandi 779

Modelling of Weather Characteristics and Wind Power in the Eastern Part of Saudi Arabia: A. Z. Al-Garni, A. Z. Sahin and A. Al-Farayedhi 805

A Study of Flame Spread Along a Droplet Array at Elevated Pressures up to a Supercritical Pressure: J. Park, H. Kobayashi and T. Niioka 813

SHORT COMMUNICATION

Performance Test of a Box-Type Solar Cooker: Effect of Load on the Second Figure of Merit: D. Buddhi, S. D. Sharma and R. L. Sawhney 827

ERRATUM 831

VOLUME 23, ISSUE No. 10 August 1999

Study of Extraction and Pyrolysis of Jordan Tar Sand: Y. H. Khraisha 833

Humid Air Turbine Cycle Blade Cooling Exergetic Analysis: F. Di Maria and V. Mastroianni 841

Behaviour of Ternary Blends in Heated Suction Accumulator: S. M. Sami and D. Desjardins 853

Optimization of the Irreversible Stirling Heat Engine: L. B. Erbay and H. Yavuz 863

Periodic Solution of Luikov Equations for Heat and Mass Transfer in Capillary Porous Bodies: R. C. Gaur and N. K. Bansal 875

Adsorption Mechanism and Improvements of the Adsorption Equation for Adsorption Refrigeration Pairs: R. Z. Wang and Q. B. Wang 887

Numerical Simulation of the Cold Flow in an Axisymmetric Non-compressing Engine-like Geometry: A. Bilgin 899

A Statistical Analysis of Wind Energy Potential at the Eastern Region of Saudi Arabia: A. Z. Şahin and A. Aksakal 909

SHORT COMMUNICATION

Electrolytic Preparation and Characterization of Ni–Fe–Mo Alloys: Cathode Materials for Alkaline Water Electrolysis: L. Ramesh, B. S. Sheshadri and S. M. Mayanna 919

VOLUME 23, ISSUE No. 11 September 1999

Finite Time Thermal Analysis of Ground Integrated-Collector-Storage Solar Water Heater with Transparent Insulation Cover: K. S. Reddy, P. Avanti and N. D. Kaushika 925

Solar Drying of Rainbow Trout: H. Olgun and S. Köse 941

Thermoeconomic Optimization of Simple Refrigerators: H. Dingeç and A. İleri 949

A Study of Thin-flame Quasisteady Sphericosymmetric Combustion of Multicomponent Fuel Droplets. Part I: Modelling for Droplet Surface Regression and Non-unity Gas-phase Lewis Number: A. Mukhopadhyay and D. Sanyal 963

A Study of Thin-flame Quasisteady Sphericosymmetric Combustion of Multicomponent Fuel Droplets. Part II: Parametric Studies: A. Mukhopadhyay and D. Sanyal 979

Thermal Transport Phenomena of Turbulent Jet Diffusion Flames by Means of Anisotropic k–ε–$\overline{t^2}$–ε_t Model: S. Torii 989

Impact of Scale Build-up Models on Energy Utilization in Heat Exchangers: S. O. Duffuaa and M. O. Budair 999

Some Aspects Concerning Modelling the Flow and Heat Transfer in Horizontal Mantle Heat Exchangers in Solar Water Heaters: G. Rosengarten, M. Behnia and G. Morrison 1007

VOLUME 23, ISSUE No. 12 10 October 1999

Evaluation and Selection of Energy Storage Systems for Solar Thermal Applications: I. Dincer 1017

Energy and Exergy Analyses of Cold Thermal Storage Systems: M. A. Rosen, N. Pedinelli and I. Dincer 1029

Performance Analysis of a Closed Regenerated Brayton Heat Pump with Internal Irreversibilities: L. G. Chen, N. Ni, C. Wu and F. R. Sun 1039

Improvement of a Chemical Heat Pump by Computer-aided Design: P. Forges, A. Forestier and M. Amouroux 1051

Experimental Study of Thermal Performance Improvement of a Solar Air Flat Plate Collector Through the Use of Obstacles: Application for the Drying of 'Yellow Onion': A. Ahmed-Zaid, H. Messaoudi, A. Abenne, M. Le Ray, J. Y. Desmons and B. Abed 1083

Heat Transfer and Entropy Analysis for a Transparent Gas Flowing in a Tube: S. A. Gbadebo, B. S. Yilbas and K. Boran 1101

VOLUME 23, ISSUE No. 13 25 October 1999

Thermodynamic Optimization Alternatives: Minimization of Physical Size Subject to Fixed Power: A. Bejan 1111

Artificial Neural Networks for Thermopiezoelectric Systems: M. Sunar 1123

Entropy Analysis of a Flow Past a Heat-generated Bluff Body: S. Z. Shuja, B. S. Yilbas, M. O. Budair and I. S. Hussaini 1133

Experimental Studies on Mushroom and Pollen Drying: A. Midilli, H. Olgun and T. Ayhan 1143

Exergy Analysis of Waste Emissions: M. A. Rosen and I. Dincer 1153

Effect of the Equivalence Ratio on the Concentration of $CH_4/NO_2/O_2$ Combustion Products: A. A. Al-Farayedhi, M. A. Antar and A. Khan 1165

Demonstration of Coal Gas Run Molten Carbonate Fuel Cell Concept: A. Mathur, S. Bali, M. Balakrishnan, R. Perumal and V. S. Batra 1177

The Cost of Uncertainty in Capacity Expansion Problems: J. Wang and F. T. Sparrow 1187

Comments on 'Effects of Transverse Magnetic Field, Prandtl Number and Reynolds Number on Non-Darcy Mixed Convective Flow of an Incompressible Viscous Fluid Past a Porous Vertical Flat Plate in a Saturated Porous Medium': D. A. Nield 1199

Reply to Comments: H. S. Takhar and O. A. Beg 1201

VOLUME 23, ISSUE No. 14 November 1999

Evaluation of Regenerative Phase Change Drywalls: Low-energy Buildings Application: K. Darkwa . 1205

Investigation of a Combined Solar-heat Pump System for Residential Heating. Part 1: Experimental Results: K. Kaygusuz 1213

Investigation of a Combined Solar-heat Pump System for Residential Heating. Part 2: Simulation Results: K. Kaygusuz 1225

Performance Enhancement in Coal Fired Thermal Power Plants. Part IV: Overall System: M. Siddhartha Bhatt, R P. Mandi, S. Jothibasu and N. Rajkumar 1239

Simplification of the Mechanism of NO_x Formation in a CH_4/Air Combustion System: M. Xu, Y. Fan and J. Yuan 1267

The Contact Factor for Dryer Performance and Design: S. K. Chou, M. N. A. Hawlader, J. C. Ho and K. J. Chua 1277

ANNOUNCEMENT 1293

VOLUME 23, ISSUE No. 15 December 1999

Performance Analysis of a Hybrid Photovoltaic/Thermal (PV/T) Collector with Integrated CPC Troughs: H. P. Garg and R. S. Adhikari 1295

Flame Spread Behaviour of Blended Fuel Droplet Array: J. Park, H. Kobayashi and T. Niioka 1305

A Numerical Study on the Effect of Flow Distribution on Reactor Performance: H. C. Cho and H. D. Shin 1313

'Results of Experimental Investigations of the Non-throttling Granryd Refrigerator: J. Szargut and J. Skorek 1325

Operating Characteristics of a Molten Carbonate Fuel-cell Power-generation System: W. He 1331

Power-generation Characteristics of Molten Carbonate Fuel-cell Stacks by Using Computational Fluid Dynamics Technique. Part 1: Modelling Equations and Program Implementation: W. He 1345

Fuel Injection Characteristics of Diesel-stimulated Natural Gas Combustion: M. Mbarawa, B. E. Milton, R. T. Casey and H. Miao 1359

Author Index 1373

Key Word Index 1375